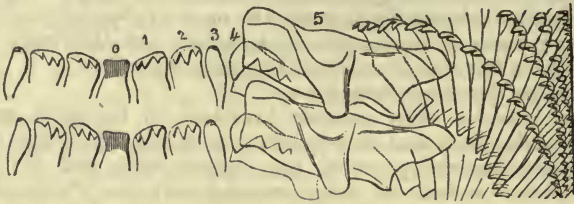


subequal, compressed, transparent, with a recurved tip, which in the inner teeth of the series is bifid.



Teeth of *Ceres Salleana*.

1. CERES SALLEANA, Gray.

Shell yellow; upper surface conical, convex, rugulose, with numerous close, parallel, granular concentric striæ; lower surface smooth, polished; keel acute, expanded.

Hab. Cordera, State of Vera Cruz, Mexico, in dense woods, under dead leaves (*M. A. Sallé*).

2. CERES EOLINA. *Proserpina eolina*, Duclos, Mag. Zool.

The shell orange; upper surface flat, rugulose, with numerous short, parallel, diverging, narrow, sharp ridges; keel very acute, bent up; lower surface convex, subhemispherical, polished, orange; axial callosity thin, semitransparent, whitish.

GEOLOGICAL SOCIETY.

January 7, 1857.—Colonel Portlock, R.E., President, in the Chair.

The following communications were read:—

1. "On the *Dichodon cuspidatus*." By Professor Owen, F.R.S., F.G.S.

In this paper additional facts were communicated relative to the dentition of the *Dichodon cuspidatus* to those given in the author's original memoir on the species in the 'Quarterly Journal of the Geological Society,' vol. iv. p. 36. They related to the structure of the last molar tooth of the lower jaw, which has a third bicuspid lobe, and to the forms and period of succession of the permanent teeth. The formula of the deciduous dentition was

$$i \frac{3-3}{3-3}, c \frac{1-1}{1-1}, dm \frac{4-4}{4-4} = 32;$$

that of the permanent dentition is

$$i \frac{3-3}{3-3}, c \frac{1-1}{1-1}, p \frac{4-4}{4-4}, m \frac{3-3}{3-3} = 44.$$

The form and structure of all the permanent teeth, with the exception of the fourth premolar, are now known.

The deciduous formula is the same as in the genus *Sus*; the permanent one differs by the displacement of the first deciduous molar

by a true premolar. Whilst, however, the *Dichodon* resembles the Hog-tribe in the kind and number of its teeth, it resembles more the Ruminantia in the configuration of the true molars. The now ascertained facts of the deciduous dentition of the *Dichodon* supply an additional test of its affinities, owing to the marked difference in the times and order of succession of the permanent teeth, between the non-ruminant and the ruminant Artiodactyles.

In the Ox and Sheep the last true molar cuts the gum before any of the premolars appear, and the canine teeth are the last to come into place. In the Hog the canines appear before the premolars, and these rise into place before the last molar has attained the level of the other grinders. In the *Dichodon* the second true molar is in place before any of the deciduous teeth have been shed; and it more resembles the Sheep in the order of appearance of the permanent teeth. But there is some difference; for by the time the second true molar is as far advanced in development as in the *Dichodon*, figured in plate 4 of vol. iv. Quart. Journ. of Geol. Soc., the first permanent incisor is in place, and the germs of the premolars in the formative cavities have calcified crowns. The adult *Dichodon* appears to have equalled in size a South Down sheep: the probable age of the immature individual above referred to might be surmised from the analogies presented by the subjoined Table of the times of appearance of the permanent teeth in the—

Symbols.	Ox.				Sheep.				Hog.	
	Early.		Late.		Early.		Late.		Year.	Month.
	Year.	Month.	Year.	Month.	Year.	Month.	Year.	Month.		
<i>i</i> 1	1	9	2	3	1	0	1	4 to 8	1	0
<i>i</i> 2	2	3	2	9	1	6	2	0 to 4	1	6
<i>i</i> 3	2	9	3	3	2	3	2	9 to 12	0	9
<i>c</i>	3	3	3	9	3	0	3	6	0	9
<i>m</i> 1	0	4	0	6	0	3	0	6	0	6
<i>m</i> 2	1	3	1	8	0	9	1	0	0	10
<i>m</i> 3	2	0	2	3	1	6	2	0	1	6
<i>p</i> 2	2	6	2	8	2	0	2	6	1	0
<i>p</i> 3	2	6	2	8	2	0	2	6	1	0
<i>p</i> 4	2	8	3	0	2	3	2	6	1	3

The symbols of the teeth are explained in the author's paper "On the Homologies of the Teeth," in Reports of the British Association, 1848; and in Orr's 'Circle of the Sciences,' 8vo, 1854.

The additional specimens of the *Dichodon* described in this paper are from the Upper Eocene beds; one from the Isle of Wight is preserved in the private collection of Dr. Wright of Cheltenham; the rest, from Hordwell, Hants, form part of the Collection of Fossils in the British Museum.

2. "On a Fossil Ophidian from Karabournou, Salonica Bay." By Professor Owen, F.R.S., F.G.S.

The vertebræ here described, thirteen in number, indicated by their size a serpent of between 10 and 12 feet in length. They were discovered some years since by Capt. Spratt, R.N., in the fresh-

water tertiary beds at the Promontory of Karabournou. Supposing them to have been derived from other parts than the anterior fourth part of the trunk, they resemble in the length of the hypapophysis the vertebræ of *Crotalus*, *Vipera*, and *Natrix*; which they also resemble in the presence of a process developed from both the upper and lower part of the diapophysis. The results of a minute comparison of all the parts of the complex vertebræ of ophidian reptiles were given, which rendered it probable that the Salonica fossil serpent resembled those genera in which the hypapophysis is well developed from all the trunk vertebræ: the breadth of the base of the neural arch indicates that they have been from about the middle of the trunk. They offer so many points of resemblance with those of the Rattlesnake and Viper, that they may have belonged to a venomous species, but they are specifically distinct from those existing serpents: they differ generically and in a very marked degree from the vertebræ of the great constricting serpents (*Python* and *Boa*), as well as from the large fossil serpent (*Palæophis*) of the Eocene Tertiary formations. A summary of the known existing serpents of Southern Europe and Asia Minor was given, showing that none of the living species equal in bulk the fossil serpent. "A classical myth embalmed in the verse of Virgil and embodied in the marble of the Laocoon would indicate a familiarity in the minds of the ancient colonists of Greece with the idea at least of large serpents. But according to actual knowledge, and the positive records of zoology, the serpent between 10 and 12 feet in length from the tertiary strata of Salonica must be deemed an extinct species." For this fossil Professor Owen proposed the name of *Laophis crotaloides*.

3. "On some additional Cambrian Fossils from the Longmynd." By J. W. Salter, Esq., F.G.S.

In March 1856 Mr. Salter communicated the discovery of traces of Annelides and probable fragments of a Trilobite, accompanied by ripple-marks, in the sandstone-beds of the eastern part of the Longmynd. During the last summer he collected many more materials for the elucidation of the palæontology of the Longmynd rocks; and in the present paper described the occurrence of abundant annelid markings, referable to two species (one of them new), throughout a mile of thickness in the lower portion of the nearly vertical shales, sandstones, and flagstones of the Longmynd, from Church Stretton to the Portway.

Wave- or surf-marks, ripples, sun-cracks, and rain-prints were also described as occurring at several localities on the surfaces of these laminated rocks of the Longmynd.

Arenicolites sparsus was proposed as the name for the new species of double worm-hole above alluded to. Mr. Salter also adverted to the discovery of numerous vertical worm-tubes in the quartz rock of the Stiper Stones. These he believes to be the same as the *Scolithus linearis* of Hall, found in the Potsdam sandstone of North America.

He proposes the term *Arenicolites* for all fossil worm-holes with double openings, and *Helminthites* for the superficial trails.

4. "On some Species of *Acidaspis* from the Lower Silurian beds of the South of Scotland." By Professor Wyville Thomson. Communicated by J. W. Salter, Esq., F.G.S.

The author described three new species of the trilobitic genus *Acidaspis*, from the Lower Silurian flagstones with Graptolites and Orthoceratites of Pinwhapple Glen, and one from the overlying sandstone of Mullock Hill, Ayrshire. The names proposed for these species were *Acidaspis Lalage*; *A. hystrix*; *A. unica*; and the fourth, *A. callipareos*.

5. "On two Silurian Species of *Acidaspis* from Shropshire." By J. W. Salter, Esq., F.G.S.

In this communication Mr. Salter gave descriptions and figures of *Acidaspis coronata*, sp. nov., from the Lower Ludlow Rock, and *A. Caractaci*, from the Caradoc or Bala Sandstone of Gretton. The latter species had been previously described, but not figured.

MISCELLANEOUS.

Observations on the Organization and Reproduction of the Volvocineæ. By F. COHN.

THE author states that his observations on *Volvox globator* have convinced him that its proper place is amongst the Algæ. In it, as in the *Eudorinæ*, *Gonia*, *Stephanosphæra*, and other *Volvocineæ*, each spherule is not so much an individual properly so called, as an association or family of individuals,—a sort of vegetable polypary. A globe of *Volvox* is formed at its periphery by an infinity of very small six-sided cells, soldered together like the elements of an epidermic tissue. Each of these cells is furnished with two moveable cilia, and may be compared to a *Chlamydococcus*; its green endochrome is as it were suspended in its cavity, and only touches its walls by means of filiform processes.

Like all Algæ, *Volvox* possesses two modes of reproduction, but hitherto only one of these has been known to naturalists: this consists in a continual division of their cells, and recalls the scissiparity of *Chlamydococcus* or *Gonium*, or that of most of the *Palmellaceæ*. In each sphere of *Volvox* there is never more than a very small number of utricles, which are charged with this part of multiplication. By the continual binary division of their endochrome, these special utricles, which are simple at first, come to contain as many as 12,000 distinct cells, and thus become so many new spheres, which soon free themselves.

The second mode of reproduction of the *Volvox* requires a sexual concourse, and is not observed indifferently in all individuals. The spherules endowed with sexuality are recognizable by their size and by the greater number of their component utricles; they are generally monœcious, that is, they contain both male and female cells; but the greater part of their elements is neutral. The female cells soon exceed their neighbours in size; they acquire a deeper green tint, and become elongated, in the manner of a matrass, towards the